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Ranger Rick®



EDUCATOR'S GUIDE



This guide is designed to complement the
October 2007 issue of National Wildlife Federation's
Ranger Rick® magazine.





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Introduction

Welcome to the *Ranger Rick* Educator's Guide!

This guide provides you with educational activities to bring **National Wildlife Federation's** *Ranger Rick*® magazine alive in the classroom and beyond. Using *Ranger Rick* feature articles as an entry point, this guide engages students ages 7-12 in exploring the natural world to build literacy, critical and creative thinking skills, and understanding across the disciplines. Activities are correlated with the National Education Standards for science and language arts, and are designed to assist you in meeting required curriculum objectives.

Can we have class outside today?

Find out how you can say "Yes!" at www.nwf.org/backyard. The outdoor environment offers excellent opportunities for active, hands-on, interdisciplinary learning. You can enhance the learning experience by creating your own habitat site. Revitalize an entire schoolyard, a garden, or even a rooftop, windowsill, or balcony by creating an outdoor classroom and sanctuary for birds, butterflies, and other wildlife.

How To Use This Guide

Each section of the guide is matched with a specific *Ranger Rick* feature. After you read through the magazine, choose the stories and activities that complement your curriculum and that will interest your students. Sections include:

- **Learning Links.** A summary of concepts presented in the article.
- **Discussion Questions and Writing Prompts.** Entry points to engage students in discussion or writing to develop literacy and thinking skills.
- **Resources.** Web sites and books where you can find further information.
- **Activity Ideas.** Quick investigations and extended projects to complement article topics.
- **Student Pages.** Ready-to-copy activity sheets for students.

We have also provided a **Family Fun** activities page for you to copy and send home with students.

Subscribe to *Ranger Rick*!
Special rate classroom subscriptions available.
Details at www.nwf.org/rangerrick

Island of the Bats

pages 6-13

1



Learning Links:

On Barro Colorado Island in Panama, 74 different bat species coexist—almost twice as many as in the entire United States! How? Each species has a unique ecological niche. The bats share the small space by utilizing a wide variety of food sources and roosting locations.

DISCUSSION QUESTIONS & WRITING PROMPTS

Pre-Reading Questions:

- What would you say is easier: getting along with someone who is a lot like you or a lot different from you? Why?
- Animals sometimes compete with members of their own species or with other species for things they need. What are some resources they might compete for?

Comprehension Check:

- Where is Barro Colorado Island?
- How many different species of bats live there?
- Name at least five different things the bats eat.

- Name at least three different places where the bats sleep.
- “Different is good” for these bats—why?
- Describe some of the ways that scientists study the bats on Barro Colorado.

Critical and Creative Thinking Connections:

- For bats, finding a good roost is just as important as finding enough food. Why do you think that is?
- If you were a bat scientist on Barro Colorado Island, what questions about bats would you like to investigate? How might you find the answers?

RESOURCES

Beginner's Guide to Bats by Kim Williams, Rob Mies, Donald Stokes, and Lillian Stokes (Little, Brown, and Company, 2002). Here's a great introduction to bat identification and behavior in a pocket-sized book.

Outside and Inside Bats by Sandra Markle (Walker Books, 2004). This book describes the physical characteristics and behavior of bats in an engaging, photo-filled format.

➤ www.nwf.org/batguide/batguide.pdf Find lots more information and activities about bats in this activity guide from the National Wildlife Federation.

➤ www.batcon.org Bat Conservation International's Web site is a definitive bat resource.

ACTIVITY IDEAS

Bat and Moth Game

Play the “Bat and Moth” game to help students understand how bats use echolocation to find their food in the dark. A variation of the familiar game “Marco Polo,” it begins with a group of students joining hands in a circle. Choose one student to come into the middle of the circle as the bat, and two or three others to come in as moths. Those on the outside become trees in the forest. Have the bat close his or her eyes or wear a blindfold. The bat’s goal is to tag the moths. To simulate echolocation, the bat calls out “Bat!” and the moths must respond “Moth!” The bat may call out as often as he or she wants. The moths may move around and duck down but cannot go outside the circle. When moths are tagged, they join the outside of the circle. You could play several rounds of this game, substituting for the moths other prey mentioned in the *Ranger Rick* story (such as katydids, frogs, and fish).

TIME:
15-30 Minutes
MATERIALS:
Blindfold (optional)


Bats in the Neighborhood


Invite students to investigate local bats. Find out what bat species live in your area. (See the Resources section for a helpful field guide.) Go on a nighttime walk and see if you can spot some. Then put up a bat house somewhere in the neighborhood. Use the tips in “Go Batty!” on page 13 to get started. Involve students in all steps of the project, from researching the best location for the house, talking with officials to get permission, choosing or constructing the house, and making a sign that explains the function and importance of the house to other members of the community. Additional information and instructions for building a bat house are available on page 20 of the online bat activity guide at www.nwf.org/batguide/batguide.pdf.

TIME:
Variable
MATERIALS:
Internet access
Ready-made bat house or supplies to construct one

Bat Biology and Biography

Delve deeper into the ecological concepts illustrated by the Barro Colorado bats. Here are some points to discuss with students:

 **Niche.** A species’ ecological niche refers to its role or place in the community where it lives. Each bat species occupies a different niche, defined by characteristics such as its food source, where and how it hunts, and where and how it roosts. Have students list all the different food sources and roost locations mentioned or pictured in the story.

 **Limiting factors.** The number of bats the island can support is limited by both the food resources and the available roosts. If there were abundant food but only a few places to roost, which factor would determine the population size? This is the limiting factor.

Guide students to understand that the diversity of niches reduces competition among the Barro Colorado bats, making it possible for so many species to live in a small area.

TIME:
15 Minutes
MATERIALS:
None

Bat Adaptations

Engage students in finding out more about how different bat species are adapted to eat different kinds of foods using the “Investigating Bat Adaptations” activity. You’ll find it on page 6 of the bat activity guide at www.nwf.org/batguide/batguide.pdf.

TIME:
60 Minutes
MATERIALS:
Internet access

Trick or Treat?

pages 20-25

2



Learning Links:

This article examines: (1) the changes in matter that occur as chocolate is processed from cacao bean to candy bar, and (2) the role chocolate has played in different cultures throughout history.

DISCUSSION QUESTIONS & WRITING PROMPTS

Pre-Reading Questions:

■ Look at the photos on pages 20 and 21. What do you think they have in common?

Comprehension Check:

- What are those football-shaped objects on page 20?
- What are inside the pods?
- What are the beans used for?
- Where do cacao trees grow?
- What is a midge? Why is it important to cacao trees?
- What are four steps that farmers follow to harvest cacao beans?
- How can we help make sure that cacao farmers get a fair price for their beans?
- What are five steps cacao beans go through at the chocolate factory to become milk chocolate?
- What is the first chocolate food that we know about, and who “invented” it?

- How are today's chocolate products good for you?
- How are they bad for you?

Critical and Creative Thinking Connections:

- Look at the “History of Chocolate” time line on pages 24-25. How has chocolate changed through the ages?
- What do you think are the three most important events in the history of chocolate? Why?
- Predict how future chocolate products will differ from current ones.
- Do you think doctors should tell their patients to eat chocolate? Why or why not?
- Do you think chocolate candy is the most popular kind of Halloween treat? Why or why not?

RESOURCES

Chocolate: Riches from the Rainforest by Robert Burleigh (N. Abrams, Inc., 2002). This book chronicles the history of chocolate. Sprinkled with fascinating facts, illustrations, and photographs, it also instills a respect for the rainforests and laborers that produce chocolate.

➤ www.fieldmuseum.org/chocolate/kids.html To see a good interactive video on how chocolate companies make chocolate candy from cacao beans, visit this Web address and click on “Manufacturing chocolate from seed to sweet.”

ACTIVITY IDEAS

The Great Wall of Chocolate

Write each of these chocolate-related words on its own index card: cacao, pod, midge, cacahuatl, Dutched cocoa, milk chocolate, bittersweet, semi-sweet. Display the cards on a bulletin board and add the heading: "The Great Wall of Chocolate." Fill in any empty areas of your "word wall" with chocolate candy wrappers and photos of chocolate cut from magazines. After students read "Trick or Treat?" in *Ranger Rick*, ask the class to search through the article to find the words displayed on the wall. Have student volunteers read the sentences that contain them and then define the words. (This exercise encourages students to use context clues to determine word meaning.) Have students collect other chocolate words and pictures they encounter and add them to the wall. Later, divide the class into pairs and have students tell each other a short story that includes several of the words on the wall.

TIME:

Variable

MATERIALS:

Bulletin board
Thumbtacks
Eight or more index cards
Marker
Colored paper
Scissors
Old magazines
Chocolate candy wrappers

Invent Something Chocolate—Then Wrap It Up

As a class, discuss the "History of Chocolate" timeline on pages 24-25. Guide students to see how the creation of one chocolate product can lead to additional chocolate innovations. Then challenge students to use what they have learned about chocolate to think up their own chocolate products and to design appropriate wrappers or labels for them. Guide students through the process by having them complete the [Invent Something Chocolate student page](#).

TIME:

45 Minutes

MATERIALS:

[Invent Something Chocolate student page](#)
Markers or crayons

The Chocolate Diaries

Ask each student to assume the identity of a person involved in one of the events on the timeline depicted on pages 24-25. Then have students write diary entries as if they were that person. The entry should describe the important event in chocolate history and the author's thoughts about it. Once students have completed their entries, put them in chronological order and store them in a three-ring binder. Display the binder where students can read its contents during their free time. Encourage students to write and insert additional entries to fill any historical gaps.

TIME:

30-45 Minutes

MATERIALS:

Library or Internet access
(optional)
Paper and pencils
Three-ring binder

Lay It on the Line

Coffee, corn, and chewing gum are other plant products that have historic roots in Central or South America. Divide the class into three groups and have each group research one of these products. Then ask each group to select the six to eight most important events in their product's history and illustrate them as a timeline on a sheet of butcher paper. Display the results on a classroom bulletin board or wall.

TIME:

60-75 Minutes

MATERIALS:

Library or Internet access
Butcher paper
Markers or crayons



Invent Something Chocolate

Directions: You have been hired by the Sweet Inspirations Company to come up with a new chocolate product. Complete this worksheet to get all the inspiration you need to succeed at this yummy task.

1. What is the name of your product? _____

2. Describe your product. (What is it? What does it look like? What makes it special?) _____

3. List the ingredients in your product. _____

4. Describe your customer (the kind of person who would most likely want it). _____

5. Why would this customer want your product? _____

6. What would be a good sales slogan for this product? _____

7. On the back of this paper, draw a wrapper or label for your product. Be sure to include the product's name, the name of your company, the price, a list of product ingredients, and a product sales slogan.

Birds of Paradise

pages 32-37

3



Learning Links:

As a group, birds of paradise take fancy feathers and elaborate courtship dances to an extreme. The birds also provide an opportunity to introduce students to a faraway place (New Guinea) and some of the cultural traditions of people who live there.

DISCUSSION QUESTIONS & WRITING PROMPTS

Pre-Reading Questions:

- Before you read “Birds of Paradise,” look at the photos in this story. What’s special about these birds?
- Which bird do you think is the most beautiful? The strangest? Why?

Comprehension Check:

- What are the birds in this story called?
- As a group, what are some characteristics that they have in common?
- Where do they live?
- How many species are there?
- Why do the males have fancy feathers?
- Why do the males dance?
- What do the females do when the males dance?

Critical and Creative Thinking Connections:

- Which of these birds would you most like to see in real life? Why?
- The author of this story compares the birds’ song-and-dance routines with the TV show “American Idol.” How is the competition similar? How is it different?
- In the photo on page 37, a man is dressed in a costume inspired by birds of paradise. Imagine you were going to dress up in a costume inspired by an animal from your area. What animal would you choose? What would your costume look like?

RESOURCES

- www.nwf.org/rangerrick Links to videos of birds of paradise in action are among this month’s features on the Ranger Rick Web site.
- www.aviary.org/curric/sociallives.htm# On the Web site of the National Aviary, you can learn more about bird courtship. “How to Attract a Mate” compares birds’ elaborate behaviors with those of humans. Click on “The Dance of Love” in the sidebar for a silly, fun activity about mating dances.

ACTIVITY IDEAS

Be a Bird

Check out those bright colors and fancy feathers in the photos in “Birds of Paradise.” Note the man with the bird-inspired costume on page 37. Then invite students to make their own birds-of-paradise masks or costumes. Alternatively, you could use local birds as the inspiration for your creativity. To decorate the costumes, take students on an outdoor walk to collect natural items (such as leaves, twigs, pinecones, shells, etc.). When your works of art are complete, have a parade or invent a dance to perform while wearing the costumes.

TIME:

60 Minutes

MATERIALS:

Mask- or costume-making supplies: construction paper; yarn; scissors; glue

Live Action

To fully appreciate the birds' fancy dances, check out the videos of the birds in action. You'll find links at www.nwf.org/rangerrick. After viewing the videos with students, discuss how these birds' behaviors compare with behaviors students have observed in other birds.

TIME:





15 Minutes

MATERIALS:

Internet access

Performance in Paradise

Ask students to imagine that they will be hosting a troop of performing birds of paradise at school. In small groups, have them make programs for the birds' performance. Collect a variety of programs from plays, recitals, or concerts as examples. Students' programs could include elements such as:

-  A “Meet the Dancers” section with a photo (or illustration) and brief biography of each performer.
-  A list of acts in the order in which they will be performed.
-  An “About the performance” paragraph explaining where the birds come from and what the dances are all about.
-  A map of New Guinea showing the birds' home.

TIME:

60 Minutes

MATERIALS:

**Sample programs from real performances
Paper and pencils
Markers or crayons**

Show-off or Shy?

Birds of paradise have flashy feathers, bright colors, and show-off dance moves all for one reason: to attract attention. Many things in nature are meant to catch the eye. At the same time, many other things have camouflage colors and patterns, blending in so that they won't be seen. Take students on an outdoor walk to look for things that fit into each of these categories. Hand out copies of the [Colorful or Camo? student page](#) for students to fill in as they look for both eye-catching, attention-grabbing items and hard-to-spot, camouflaged ones. After the walk, engage students in a discussion about why it's an advantage for some animals or plants to blend in, while others benefit from sticking out and being seen.

TIME:

30-45 Minutes

MATERIALS:

[Colorful or Camo? student page](#)



Ranger Rick[®]

Family Fun!

*Dear Parent or Guardian,
Your child is reading Ranger Rick magazine in class. Each month, amazing photos, feature articles, and activities bring nature, wildlife, and conservation to life. You can extend the learning and fun at home with these engaging family activities.*

BIRTHDAY GREETINGS

Did you see all those great birthday cards made by *Ranger Rick* readers in “Dear Ranger Rick” (pages 4-5)? What a creative bunch! Next time a family member or friend has a birthday, why not make a card instead of buying one? Use recycled paper to save resources and create a one-of-a-kind gift.

FUN WITH BATS

Want to see bats in action? Put up a bat house (see the tips in “Go Batty!” on page 13). Or look for bats on a nighttime walk. Check online or in a field guide to find out what bats share your neighborhood.

MONSTERS: MYTH OR REALITY?

Read “Monsters! Are They for Real?” (pages 14-18) carefully. Then discuss each monster in the story: Nessie, Bigfoot, Mothman, and Chupacabras. What’s the evidence that the monster might exist? What’s the evidence that it’s a myth? What do you think, and why?

CHOCOLATE DETECTIVES

Chocolate is a great treat, but it can be pretty tricky for the people who grow it to make a living. As you read in “Trick or Treat” (pages 20-25), buying Fair Trade chocolate is one way to help chocolate-growing families. Do some detective work next time you’re at the store and see if you can find Fair Trade chocolate on the shelves.

BIRD BALLET

The flashy birds in “Birds of Paradise” (pages 32-37) sure can put on a show! Have some fun making colorful bird masks or costumes for yourselves and then choreograph your own fancy dance.

BAG-O-GOODIES

Check out “Bigfoot Bag” (page 38). Get creative and make your own goodie bag. Use these instructions or one of the other ideas at www.nwf.org/rangerrick, or invent your very own design. Happy Halloween!

For more interactive family fun, be sure to visit www.nwf.org/kids.

